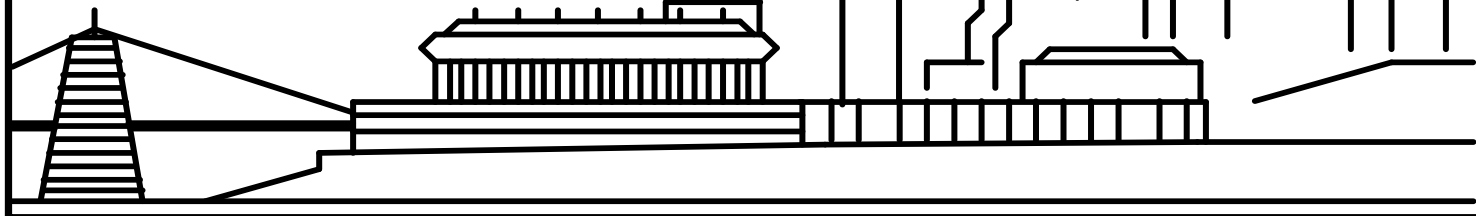




**INSTITUTE OF
ELECTRICAL &
ELECTRONICS
ENGINEERS, INC.**



APRIL 1996

IEEE CINCINNATI SECTION NEWSLETTER

APRIL MEETING Presentation & Tour of NKU's Electronics Engineering Technology Program

DATE: THURSDAY, APRIL 25, 1996

PLACE: Northern Kentucky University, AS&T Center, Room 106

**TIME : 5:30 p.m. (Social Time)
 6:00 p.m. (Presentation)
 6:30 p.m. (Tour)
 7:30 p.m. (Adjourn)**

Reservations are required!
Please note that this is NOT a dinner meeting!!
Please call Dee Scott at
385-9446
by NOON, Tues. April 23rd

ABOUT THE TOUR

The EET Program at NKU began in 1988 and currently has approximately 120 active majors. A visiting team from TAC/ABET reviewed the program in August 1996.

The presentation, by Mr. Randy Holt of NKU, will describe the EET program, its curricular content and its history. A brief discussion will also be given on its "sister" program in Manufacturing Engineering Technology as well as a proposed Master's in Technology degree. Following the program, a tour will be given of the NKU campus with special attention directed toward the Applied Science and Technology Center.

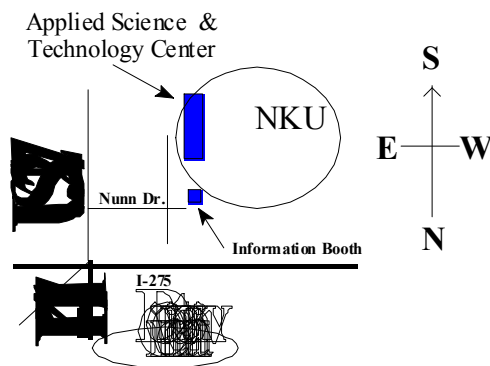
BACKGROUND OF THE SPEAKER

Randy Holt is an Associate Professor and Coordinator of Engineering Technology in the Department of Technology at NKU. He came to the university in 1988 as the first faculty line in engineering technology after twenty-five years of industrial experience with Cincinnati Milacron, General Electric Aircraft Engines, the Institute of Advanced Manufacturing Sciences (IAMS) and Honeywell. He has been actively involved in the

Cincinnati Section of the IEEE, serving as Chairman, Vice Chairman and Secretary in past years. He is currently Membership Chairman and a member of the Executive Committee.

DIRECTIONS

Using the map below, proceed to the Information Booth. You will be given further instructions on where to park.



CHAIRMAN'S MESSAGE <i>by Steve Olenick</i>
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Dr. Larry Cooper and Chris Anderson provided a very interesting and informative description of their work for NASA at the March Technical Meeting. We thank them for their time and effort.

In May, as part of PACE, we are bringing a national speaker to provide the latest IEEE efforts regarding professional engineering activities including professional growth, pensions, downsizing, etc.

Jim Everly, a Cincinnati Section Member, has developed an IEEE Home Page for Region 2. The address is:

<http://IEEE.cas.UC.edu/~region2/index.text.html>

Jim has graciously offered to develop a Home Page for the Cincinnati Section. We hope to have this available to the membership by summer. We plan to offer the newsletter electronically when the Homepage is available.

Jim has also developed a IEEE USA Precollege Education Homepage. It is part of the overall thrust of the IEEE to improve pre-college education in the areas of math and science. The address is:

<http://ieee.cas.uc.edu/~pcollege>

Future events include the annual Golf outing in June, a tour of the waterworks in September and new developments in Personal Communications Systems in October.

If you have any suggestions for technical meetings, please contact me at 513-573-6555 or e-mail me at SOLENICK@CINELE.COM. Until next time...

**A MESSAGE FROM YOUR PACE
CHAIRMAN
by Bill Lohner**

A Network of Professional Activities for Engineers"

As mentioned in last month's article I am attempting to get a speaker for our May meeting to speak about PACE activities. I felt confident of obtaining one of two active PACE officers from northern Ohio to speak to the Cincinnati section. Unfortunately they had other obligations on our May meeting date. I contacted the PACE activities office in Washington, D.C. to obtain a speaker. They suggested one of four individuals with topics which would be of interest to our section. Our Cincinnati Section Executive Committee agreed on Mr. George McClour from the IEEE-USAB. He would address IEEE pension portability, retirement planning, career planning and other pertinent topics of interest to our membership. If you have any suggestions please contact me.

On February 29th I attended a meeting of the "Council for the Advancement of Science" (CAS) at the Cincinnati Museum of Natural History. The purpose of this group is to promote scientific and technical education in our high schools. The group includes college and university professors, high school science teachers, industry representatives and others like myself. The topic of this meeting was to develop a workshop for science teachers and what presenters should know when working with students. A guest speaker was also there, Dr. Charles Warren from Ohio State University. His topic was, "What Is The Proficiency Testing Program?". Dr. Warren gave an excellent talk.

At this meeting a 132 page booklet titled "The Web, A Resource Guide for the Science Classroom" was distributed. The booklet was funded by The United States Department of Energy and FERMCO. The resources in the booklet are listed by the field of science as follows:

- | | |
|--------------------------|------------------|
| 1) Earth Science | 5) Space Science |
| 2) Environmental Science | 6) Technical |
| 3) Life Science | 7) Other |
| 4) Physical Science | |

Over 120 firms participate in this and teachers may access this resource by phone or fax. Our goal is to give the group access to IEEE resources for educational purposes. Mr. Jim Everly, our Region 2 Precollege Education representative will undertake this task.

I also went to Connersville High School in Connersville, Indiana and spoke to approximately 60 students about continuing their education after high school. This was part of the IEEE "Faraday Lecture" program. The Faraday Lecture was broadcast by satellite from Great Britain on February 7th and recorded on video tape by the high

school. It was presented to the high school science club students on March 5th. The subject was "The Chunnel", the newly constructed tunnel between France and Great Britain. It was very well done and held the students' interest. I spoke to them 45 minutes about continuing their education and engineering experiences. I also answered questions from the students. It was worthwhile and I recommend the project be continued in the future.

William J. Lohner
PACE Chairman
Cincinnati Section IEEE
(513) 385-7268

THE HISTORY OF COMPUTERS AND CALCULATORS

by R. J. Reiman, Historian

What is a computer? What is a calculator? For centuries, a computer designated a person who did calculations for a living. Its meaning has changed to mean a information processing machine which can store data (numbers, letters, pictures, symbols etc.) and can manipulate that data according to a program that is stored in the machine or processor. A computer is said to have the capacity to make decisions, such as a conditional jump, based on the results of its own computations. A computer possesses 5 basic parts, a central processor, central control, memory, and input and output units.

A calculator is defined as a small machine which does arithmetic, mathematical problems, and its operation must be directed every step of the way. Unable to store data and programs, it cannot make decisions.

The analytical engine of Charles Babbage in the 1880s resembled a calculator since it could only perform mathematical work and could not store programs. It also resembled a computer, since it was programmable, could do many thing automatically, and had a modest ability to make decisions. It had a memory (a store), a central processor (a mill) and a control (the barrel). Today, we would call it a program-controlled calculator. It did not have a stored program, and its instructions were limited to punch cards and tapes.

Was ENIAC, which was electric, could add 5,000 numbers in one second, and was a differential calculator, a computer in the sense of the above definition? Like the analytical engine, ENIAC was a program-controlled calculator. It had high speed, was programmable, and was general purpose, and a thousand times faster than its predecessors. It had no stored program, but it was truly revolutionary in 1944.

EDVAC, also the work of J. Presper Eckert Jr. and John W. Mauchly, included a stored-program, a central processor and a memory for both data and programs. An early decision was to store both program and data in the same memory and depend upon the rules of Boolean algebra and encoding to tell them apart. EDVAC had the advantage that the program could be modified, not with hard wiring, but by modifying the instructions {software}. Also, a library of programs could be stored and be accessible to meet various contingencies.

Operating at electronic speed, EDVAC could call up and carry out one program after another, and additionally it could apportion its memory space between data and programs according to need. Due to all kinds of internal interferences, delays, arguments, and even muddying of the credit to Eckert and Mauchly, the EDVAC project wasn't finished until 1952.

In Britain, Max Newman and F.C. Williams, building on the British electronic decoders of WWII, benefitted from a report on ENIAC and EDVAC written by John von Neumann. They were building MARK 1 at Manchester University.

The distinction of developing the first stored-program computer was Great Britain's with the MARK 1 in June 1948. This machine was later developed into the world's first commercial computer, the Ferranti MARK 1, which was delivered to customers in 1951, five months ahead of the UNIVAC which had been developed out of the ENIAC project.

UPCOMING SECTION & EXECUTIVE COMMITTEE MEETINGS:

MONTH	SECTION	EXECUTIVE
APR	25	X
MAY	23	16
JUNE	7	X
JULY	X	X
AUG	X	22
SEP	26	X
OCT	24	17
NOV	X	X
DEC	5	X

IEEE NEWS

Piscataway, NJ, January 19, 1996 -- The IEEE Press and Prentice Hall, a unit of Simon and Schuster, have announced the formation of a new publishing alliance of the two major publishers of computer and electrical engineering literature.

Under this special agreement, the world's largest technical professional association and the world's largest educational publisher will co-develop and co-publish selected books on the theory and practice of electrical engineering. The books will focus on several areas important to electrical, electronics and computer engineers including telecommunications, digital signal processing, computer engineering, biomedical engineering and power electronics.

"This agreement will bring IEEE members an increasing number of high quality books at lower prices," said Dudley Kay, director of IEEE Book Publishing. "Strategically designed to expand our offering and broaden distribution opportunities for both the IEEE Press and Prentice Hall, the agreement enables us both to better reach targeted specialty markets," Kay said. "In addition, the arrangement calls for editors from both businesses to work closely to ensure that each publication includes the most important topics and the most timely information."

"Prentice Hall is pleased to join the IEEE in this co-publishing alliance," said Henry Hirshburg, president of Simon & Schuster Education Group. "Together we bring an unrivaled combination of unique resources, electrical engineering expertise and publishing excellence directly to electrical engineering professionals and students worldwide."

The first book co-published under this agreement is Wireless Communications: Principles and Practice, by Theodore Rappaport (IEEE Edition ISBN 0-13-461088-1, \$52.00 members, \$64.95 list). This book is the industry's first comprehensive introductory textbook for students or newcomers to the wireless communications field. It contains practical information including standards, implementation realities and examples, problems and exercises to help students understand the key aspects of cellular and personal communications. It also serves as the basis of an IEEE self-study course on the topic. This book will be followed by Engineering Problem Solving with ANSI C by Delores Etter (IEEE Edition ISBN 0-13-525346-2, \$32.00 members, \$40.00 list).

These special edition books are available to members from the IEEE customized with the Institute's name and logo. Prentice Hall is also marketing a generic edition under its own label through retail, wholesale, college, corporate, library and government sales channels worldwide.

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Bill Lohner - PACE Chairman	385-7268
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